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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/668,151

09/24/2003

Jac Bum Kim

041501-5579

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2871

MAIL DATE

DELIVERY MODE

05/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/668,151

Applicant(s)

KIM ET AL.

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-40 and 42-44 is/are pending in the application.
- 4a) Of the above claim(s) 5,9-25,27,30-40 and 42-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-8,26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/06/2006 has been entered.

2. Applicants' response and amendment dated 07/10/2007 has been received and entered. By the amendment, claims 1-2, 4, 6-8, 26 and 28-29 are now pending in the application. Claims 5, 9-25, 27, 30-40 and 42-44 stand withdrawn from consideration.

3. Applicant's arguments with respect to claims 1, 4 and 26 have been considered but are moot in view of the new ground(s) of rejection as follow

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al., US 6,697,130, in view of Cohen et al., US 6,697,042.

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Regarding claims 1, Weindorf et al. disclose a light emitting diode (LED) circuit (400) formed on a substrate (LED circuit board) for use in a liquid crystal display (figure 4), in which the LEDs may be white or colored LEDs such as red, green and blue LEDs, other colored LEDs, or a combination of different types of LEDs (Column 6, Lines 57-60)(e.g. a plurality of white, red, green and blue light emitting diodes arranged in such order on the substrate).

Regarding claim 2, as noted above, Weindorf et al. explain that any combination of LEDs is possible (Column 6, Lines 57-60).

Although Weindorf et al. do not explicitly disclose the LED housing as well as each LED has a portion disposed inside the housing and a portion disposed outside the housing, Cohen et al. do disclose a LED having a housing (backlight cavity 5) and such LED attached to the housing with a portion inside/outside the housing (see figure 1d). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ LEDs inside a LED housing with a portion outside the LED housing for connecting purposes.

6. Claims 4, 7-8, 26, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al., US 6,781,648 B2, in view of Weindorf et al., US 6,697,130 and Cohen et al., US 6,697,042.

Regarding claim 4, Takahashi teaches and discloses a liquid crystal display device and shows in Figure 1, a light guide (120)(shaped like a plate - see Figure 5) disposed at a rear of liquid crystal display panel of the liquid crystal display (10), at least one light source (101) disposed along one side of the light guide (120), the light source including a plurality of light emitting diodes (R, G and B); a cup-shaped window (105) in which the LEDs are mounted (Column 5, Lines 16-18)(housing disposed adjacent to the light guiding plate for concentrating

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light from the light source along a first direction)(see figure 3); a reflection layer (16) disposed under the light guide (120) for reflecting light leaking along a side of the liquid crystal display panel (10) opposite to the light guide (120)(see figure 1).

Takahashi does not appear to explicitly specify that the light emitting diodes are disposed in order of white, red, green and blue as well as each LED has a portion disposed inside the housing and a portion disposed outside the housing.

However, Weindorf et al., as stated above, do disclose to a flexible LED backlighting circuit for liquid crystal displays (Title, entire patent). Weindorf (Figure 4) illustrates a LED circuit (400) formed on a LED circuit board (substrate) for use in a liquid crystal display.

Weindorf explains that the LEDs may be white or colored LEDs such as red, green and blue LEDs, other colored LEDs, or a combination of different types of LEDs (Column 6, Lines 57-60)(a plurality of white, red, green and blue light emitting diodes arranged on the substrate).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Takahashi in view of Weindorf to select a particular order of LEDs as a function of resistance to achieve proper white balance (Weindorf, Column 7, Lines 41-53). In addition, Cohen et al. do disclose a LED having a housing (backlight cavity 5) and such LED attached to the housing with a portion inside/outside the housing (see figure 1d).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ LEDs inside a LED housing with a portion outside the LED housing for connecting purposes.

Regarding claims 7-8, Takahashi shows in Figure 3 the arrangement of the cup-shaped window in relation to the LEDs.

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Regarding claims 26, 28 and 29, the method of fabricating a backlight device for a liquid crystal display as recited in claims 26, 28 and 29 would have been obvious to one of ordinary skill in the art of liquid crystal displays at the time the invention was made in view of the structures as taught and disclosed by Takahashi in view of Weindorf et al. and Cohen et al..

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al., US 6,781,648 B2, in view of Weindorf et al., US 6,697,130 and Cohen et al., US 6,697,042, further in view of Uratani et al., EP 0580 908 A1.

Regarding claim 6, the modification to Takahashi et al. discloses the claimed invention as described above except for the housing includes aluminum. Uratani is drawn to a liquid crystal display device with a backlight of a given thickness. Uratani teaches that a light guide includes an aluminum plate to achieve a high reflectance (Abstract, entire patent). Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Takahashi in view of Uratani because aluminum has excellent reflectance.

Conclusion

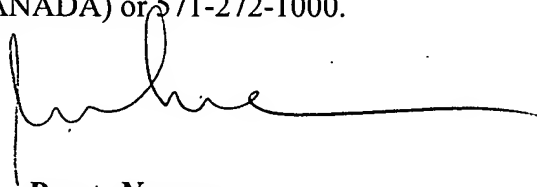
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
05/28/2007

A handwritten signature in black ink, appearing to read 'Dung Nguyen', with a long horizontal line extending to the right.

Dung Nguyen
Primary Examiner
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